REMARKS

New claims 49-58 have been added, and claims 34, 35, 47, and 48 have been amended. Therefore, claims 34-58 are pending in the present application.

Amendments have been made to the specification to correct informalities. No new matter has been added as a result of the amendments to the specification.

The Examiner rejected claims 35 and 36 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Claim 35 has been amended to cure a typographical error. In particular, the term "first second-tier base station" has been corrected to read "second second-tier base station." The amended claim 35 is consistent with the description in the specification on pages 25-26. Claim 36 depends from claim 35. The Examiner has indicated that claims 35 and 36 are allowable if rewritten in independent form to overcome the rejections under 35 U.S.C. § 112, first paragraph, as set forth in the Office Action and to include all of the limitations of the base claim and any intervening claims. Because claim 35 has been rewritten in independent form and is consistent with the written description in the patent application, claim 35, as well as its dependent claim 36, is allowable. Additionally, newly added claims 49, 50 and 56, 57 are allowable for at least the reason claims 35 and 36 are allowable.

The Examiner rejected claims 34, 37-43 and 45-48 under 35 U.S.C. § 102(b), as being anticipated by U.S. Patent No. 5,790,536 (***Mahany***). The Examiner rejected claim 44 under 35 U.S.C. § 103(a), as being unpatentable over ***Mahany*** as applied to claim 34 above, and further in view of U.S. Patent No. 5,673,252 (***Johnson***).

None of the applied references, when taken alone or in combination, anticipates claims 34-58 of the present patent application. The claims and one or more of the described embodiments of the present invention are generally directed to a multi-tier communications system in which a host can control a remote unit through a first-tier base station and a plurality of second-tier base stations. The second-tier base stations are adapted to communicate with each other without requiring intervention or facilitation by the first-tier base station. Moreover, as specified in the independent claims, the first-tier base station operates in accordance with a first communications protocol, while the second-tier base stations communicate with each other using a protocol different from the first communications protocol. Two protocols may be different in a variety of ways, including where one is a subset of another, where at least one feature is supported by one but not the other, and the like. Moreover, the protocols may be different if the physical-layer protocols employed by the first-tier and second-tier base stations are different, even though the higher-level protocols, such as the transport level and/or link layer protocols, are the same.

As described in the patent application, a plurality of second-tier base stations may be strung together to extend the range of communications by the host. For example, Figure 4 of the patent application illustrates that a plurality of second-tier base stations may, in one embodiment, be "serially" coupled to control the door locks on a given floor of a hotel. In Figure 4, the first-tier base station 450 communicates with the first second-tier base station 460, which can then wirelessly communicate with another second-tier base station 470 to control the door locks on the distant end of the floor. Similarly, this multi-tier arrangement may be deployed to control

a variety of other remote units described in the patent application, such as thermostats or security cameras.

Moreover, as previously noted, the first and second tier base stations employ different protocols. For example, in one embodiment, and as described in the patent application, the first-tier base station may employ a base station (or access point) described in the WCCN Wireless Handbook – RF Terminals & LANs, while the second-tier base stations may employ base stations compliant with the Bluetooth Specification, version 0.9. *See* Patent Application, pages 6-7. Of course, these are exemplary protocols, and that in alternative embodiments, other suitable protocols may be employed. Although not so limited, in one embodiment, as the specification describes, the communication protocol of the second-tier base station can be independent of the protocol of the first-tier base station. *See* Patent Application, page 6. The pending claims are directed to this multi-tier communications system to control one or more types of remote units.

Mahany fails to teach or disclose one or more of the features of claim 34. For example, ***Mahany*** does not disclose a first-tier base station that is coupled to a first second-tier base station, which is then further coupled to another second-tier base station to control a remote unit. ***Mahany*** discloses that base stations can be located in a premise LAN or a peripheral LAN, where the peripheral LAN is intended to provide communications between devices within near proximity and where premise LAN is intended to provide communications across great distances. *See* ***Mahany***, col. 10, lines 47-58. Figure 1b of ***Mahany*** teaches a first-tier base station 33 of a premise LAN that is capable of communicating with two second-tier base stations 35, 36 of the

peripheral LAN. However, in ***Mahany***, the mobile commuting devices (MCDs) 35, 36 of the peripheral LANs do not communicate with each other without the intervening first-tier base station 33, as called for by claim 34. Thus, the MCDs 35, 36 of ***Mahany*** cannot be coupled to extend, for example, the range of communication as is possible by the described invention. Similarly, in Figure 1c, the MCDs 62-66 cannot communicate with each other without the intervening base stations 56-59.

Furthermore, because the MCDs 35, 36 in ***Mahany*** do not communicate with each other without an intervening first-tier base station, Figures 1a-c of ***Mahany*** also do not disclose two second-tier base stations that communicate with each other using a protocol that is different from that employed by the first-tier base station, as called for by claim 34. While ***Mahany***, at column 11, lines 5-19, refers to the use of reservation access protocols, ***Mahany*** describes that such protocols are employed for communications in a peripheral LAN 40, 41 (see Figure 1b) or a premises LAN 37 (see Figure 1b). ***Mahany*** clarifies (in Figure 1b, for example) that communications in a peripheral LAN occurs between a MCD 35 and peripheral 45, 44, and that communications in a premises LAN occurs between a base station 33 and MCDs 35, 36. Thus, the references to "reservation access protocols" in ***Mahany*** are not directed to employing a different protocol between the second tier base stations in comparison to the first-tier base station, as called for by claim 34, but rather to employing reservation access protocols in peripheral and premises LANs.

In the Office Action, the Examiner argues that Figures 46a, 46b of ***Mahany*** teach the two second-tier base stations communicating with each other without the intervening first-tier base

station. In particular, the Examiner states that ***Mahany***, in Figure 46a, teaches a first-tier base station (*e.g.,* 4609 and 4611), a first second-tier base station (*e.g.,* 4607 and 4613), and a second second-tier base station (*e.g.,* 4605 and 4617), and remote units (*e.g.,* 4601 and 4603). The Examiner argues that in Figure 46a two terminals 4607 and 4605, which the Examiner contends correspond to the two second-tier base stations, communicate without the intervening terminal 4609, which the Examiner asserts corresponds to the first-tier base station. The Applicants respectfully disagree.

As an initial matter, ***Mahany*** makes it clear that Figures 46a and 46b describe a premises LAN, and not a peripheral LAN. At column 64, lines 10-13, ***Mahany*** states that Figure 46a illustrates a communications network that uses a spanning tree protocol to provide ubiquitous coverage throughout a premise. Numerous other references are made to the "premises" network of Figures 46a, b in ***Mahany***. *See* ***Mahany***, col. 69, lines 13-15 ("...participates in the premises network..."); col. 69, lines 22-24 ("the...radio and associated antenna are used for relatively lower power premises network communication."); col. 69, lines 25-30 ("...access servers located within the premises network."). Thus, Figures 46a-46b describe the "premise" LAN discussed in Figures 1a-c of ***Mahany***, and, as discussed above with respect to Figures 1a-c, the "premise" LAN includes the first-tier base station (not the second-tier base stations). Accordingly, the various terminals 4605, 4607, 4609, 4611, 4613, and 4617 illustrated in Figures 46a-46b are first-tier base stations, and not second-tier base stations as alleged by the Examiner. Thus, Figures 46a-b of ***Mahany*** do not teach the two second-tier base stations communicating with each other without the intervening first-tier base station. If the Examiner were to analogize Figure 46a to Figure 1b and argue that terminal 4605 and terminal 4601, collectively, form a peripheral

LAN, the claimed feature of a second second-tier base station being coupled intermediate the first-tier base station and a first second-tier base station would still be missing (as there would be no first second-tier base station between the first-tier base station and the second second-tier base station).

Even assuming *arguendo* that terminal 4609 of ***Mahany*** corresponds to the first-tier base station of the claimed invention, and that terminals 4607, 4605 correspond to the two second-tier base stations, as the Examiner alleges, ***Mahany*** still fails to teach one or more elements of the claimed invention. For example, ***Mahany*** does not disclose a first-tier base station that operates in accordance with a first communications protocol, while the second-tier base stations communicate using a different protocol. As noted, according to ***Mahany***, Figure 46a illustrates a communications network that uses a spanning tree protocol to provide ubiquitous coverage throughout a premise. ***Mahany*** clarifies that various terminals, such as terminals 4605, 4607, 4609, 4611, 4613, and 4617, are access servers that are employed to support local processing and to provide data and program migration in the network that uses the spanning tree protocol. *See* ***Mahany***, col. 64, lines 6-9; col. 65, lines 28-31, col. 66, lines 31-36. Thus, while ***Mahany*** teaches the use of various terminals 4605, 4607, 4609, 4611, 4613, and 4617, these terminals are nothing more than servers that are "networked" using the same protocol. That is, the terminals 4609, 4611 and 4607, 4613, 4605, and 4617, which the Examiner asserts correspond respectively to the claimed term "first-tier base station" and the terminals, employ the same protocol between the various tiers. Thus, ***Mahany*** does not teach a configuration where the first-tier base station employs a different protocol from that employed between the second-tier base stations, as called for by claim 34.

Thus, regardless of how the Examiner applies ***Mahany***, ***Mahany*** at least fails to teach a multi-tier architecture in which the first-tier and second-tier base stations employ different protocols, and in which the two second-tier base stations can communicate with each other without the intervening first-tier base station. For at least one or more of the aforementioned reasons, claim 34 and its dependent claims are allowable. Additionally, independent claim 47 and the claims depending therefrom are likewise allowable for at least one or more of the reasons discussed above.

Newly added claims 49-58 provide other claimed features that are not taught or disclosed by the applied references. For example, claim 55 calls for the second-tier base stations to directly communicate with each other (*e.g.,* without an intermediate first-tier base station), where the transmission range of the second-tier base stations is less than that of the first-tier base station. Other newly added claims are also allowable. For example, claims 51 and 52 state that the first second-tier base station has a shorter transmission range relative to the first-tier base station. ***Mahany*** does not teach that the terminals 4607, 4605 (which the Examiner alleges correspond to the second-tier base station) have a shorter transmission range relative to the terminals 4609, 4611 (which the Examiner alleges correspond to the first-tier base station). Similarly, claims 53, 54 and 58 call for additional features that are not taught or disclosed by the applied references.

In light of the arguments presented above, Applicants respectfully assert that claims 34-58 are allowable. Accordingly, a Notice of Allowance is respectfully solicited.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Houston, Texas telephone number (713) 934-4064 to discuss the steps necessary for placing the application in condition for allowance.

Respectfully submitted,

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